Sarah F. Majors

(724) 683 - 5500 sfmajors373@gmail.com
Bethel Park, Pennsylvania www.github.com/sfmajors373

PROFESSIONAL PROJECTS

Data Analytics Dashboard

- Chased bugs, created features, and developed prototypes for real time dashboards and performance reports to showcase the efficiency of the autonomous forklifts to the clients with the goal of aiding in sales
- Participated in planning meetings for new software projects in which there was integration with other teams in order to fully understand customer needs from the product and then created user stories from that perspective
- Participated in architectural planning meetings for new projects and tested different technologies by creating rapid prototypes and discussing the pros and cons of different approaches

Small Aircraft Safety Research and Information Dissemination

- Collected data from the FAA pertaining to yearly flight hours per aircraft model and from the NTSB pertaining to aircraft accident data by creating working relationships with officials from both organizations
- Ran statistical analyses on data to define a standard metric to compare the safety of different aircraft types, determined accidents per 100,000 hours of flight was most accurate and relevant; calculated this for overall safety as well as in differing environmental conditions
- Created and deployed a website in Golang to display the metrics, which were graphed using Matplotlib
- Recorded detailed methods regarding the statistical analysis to ensure reproducibility and accountability
- Created a bot to scrape the NTSB database and alert subscribed twitter users to when a final report was released

Security Drone Control Interface

- Used the bug tracker to locate and correct various bugs in the drone control UI, such as display and logic errors
- Created last minute fixes for UX issues in time for product demonstrations to clients and venture capitalists
- Designed a feature to allow the user to create bounding boxes on images which were to be fed into a machine learning algorithm which woudl then be utilized by the drone to automatically identify risks
- Utilized agile development methods in a remote setting, including Kanban, Slack, and video conferencing

Topographical Data Analysis

- Reverse engineered the recording of data from the Tripod Data Systems Survey Pro in order to correct errors in manual entry of information into the total station and prevent the loss of a day's measurements
- Utilized the data from the total station to make accurate 3D images of the topography and identify systemic issues in our mapping policies including spacing and user carelessness

PERSONAL PROJECTS

Lidar 3D Mapping Device *In Progress*

- Utilize a compact lidar module on a custom frame to collect detailed topographical information at close range
- Integrate data from individual units with the information provided by the Total Station to create site wide maps
- Create detailed, accurate, user friendly, and aesthetically pleasing maps

8-bit Computer *In Progress*

- Building a primitive 8-bit computer with breadboards and LED's based on Ben Eater's video series
- Planning PCBs to replace the breadboards for a more permanent, cat-proof arrangement

Machine Learning Projects *In Progress*

- Creating a demo of the application of privacy preserving methods to GIS in coordination with OpenMined for the United Nations
- Created a federated learning cluster on Raspberry Pi using ArchArm , PyTorch, and PySyft
- Analyzed the differences in Gaussian and Laplacian noise when used in differentiated learning on Android

Machine Learning Fundamentals *In Progress*

- Competing in Intel Edge AI scholarship challenge
- Competing in Bertelsman AI Deep Learning scholarship challenge
- Completed the Computer Vision Nano Degree from Udacity focusing on applying computer vision methods with the PyTorch and OpenCV libraries, projects include facial keypoint detection, image captioning and SLAM
- Completed and won the Secure and Private AI Facebook Scholarship Challenge Course focusing on differential and federated learning using PySyft and PyTorch with a heavy emphasis on group projects coordinated in the Slack community

- Completed and received certificate for the Deep Learning Specialization from deeplearning.ai covering deep neural networks, convolutional neural networks, sequence models and structuring machine learning projects
- Completed Machine Learning course by deeplearning.ai and Andrew Ng using Octave
- Completed the Bertelsman Data Science Challenge Scholarship Course focusing on statistics, python, and SQL

LambdaSchool *Completed*
- Completed the full time 6 month computer science course through Lambda School
- Learned data structures, algorithms, front end, back end, middleware, and databases
- Completed an additional 5 week full time course specializing in Java backend

Cookbook *In Progress*
- Having tired of calling my mom to send me her recipes at midnight, I decided to compile them into a single space that was easily replicated and shared so my mom, my sister and I could all have a copy
- Used this as an opportunity to learn more LaTex while having fun and making something I actually need

RECENT FIELD EXPERIENCE

Old Vero Ice Age Site *2016*
Vero Beach, Florida
- Excavated 1x1 units in 2.5 cm and 5.0 cm units according to natural stratigraphy utilizing methods of vertical control, identifying and collecting artifacts and ecofacts in situ with all appropriate provenience information
- Performed detailed recording and extraction of in situ Pleistocene megafauna remains
- Screened all sediments removed from units via a 1/8 and 1/16 inch screen in order to collect micro debitage, pollen, insects, charcoal and other specimens, as well as analyze the minute changes in grain size and composition of the sediments
- Attended multiple events in order to develop public relations and raise funds as well as educate the public on the importance of the science and history of our efforts
- Worked with the public and volunteers as well as discussed the site methods, finds, and implications
- Assisted in the development of topographical maps utilizing data collected with a Spectra Precision Focus 10 Total Station with a TDS Ranger Data Collector with SurveyPro software utilizing open source software including ROOT by Cern, Python 3.5, and QGIS
- Assisted in readying the site for excavation including setting up the WeatherPort, wiring the site for electricity, installing lighting fixtures, resetting the previously made grid system, updating and repairing the previously made drainage trenches and pumps, setting up boardwalks and stairs that are within safety guidelines
- Aided in the cataloging of soil samples, geological samples, artifacts, and ecofacts by unit, strata, level, and date
- Assisted with photographing the site and recording the photograph information

Cultural Resource Management *2015 - 2016*
Pennsylvania & West Virginia
- Participated in Phase I & II evaluation of various sites such as oil pipelines, well pads, stream mitigation, and large construction sites
- Utilized compass directions in order to create transects for testing and analysis
- Utilized mapping applications such as Google Earth and AutoCAD 360 to determine locations for testing
- Dug shovel test pits and 1x1 test units and recorded their properties
- Assisted in mapping historic and industrial sites, recorded feature descriptions, and prepared site for photographs

WORK HISTORY

Rivers Agile *2019 - present*
Software Engineer, Data Analytics Dashboard

Contractor *2018 - 2019*
Data Analyst, Small Aircraft Safety Reseach and Information Dissemination

Nightingale Security *2017 - 2018*
Intern, Security Drone Control Interface